EOS Science Networks Performance Report

This is a summary of EOS QA SCF performance testing for April and May 2003 -- comparing the performance against the requirements from BAH, including Terra, TRMM, and QuikScat, Aqua, ADEOS II, Aura, SAGE III, and ICESat requirements

Up to date graphical results can be found on the EOS network performance web site (now pretty stable): http://corn.eos.nasa.gov/networks (Then click on a category next to "Active Testing"). Or use the links to the individual site results in the site details section.

Highlights:

- Improvement noted from LaRC (both ECS and LaTIS) to Abilene sites
- ICEsat SCF encounters degradation at busy hours compared with GSFC-MAX – must be congestion at either IOnet or NISN to MAX.
- Otherwise, mostly stable performance.
- Will add testing to NOAA-Camp Springs and from OMI-AERO to GSFC next month

Change History:

- February 2003: Another requirements update from BAH– no major changes
- December 2002: Updated to latest BAH requirements, based on Handbook v1.2. Includes additional missions.
- June 2001: The requirements were modified to incorporate an updated number of EOS funded users at each tested site, based on the latest SPSO database. The total number of users increased in this way from 434 to 1012 (US only).
- May 2001: The requirements were increased by adding a 50% contingency factor to all QA and SIPS requirements, which were omitted with the change to the new BAH requirements in March 2001.

Ratings:

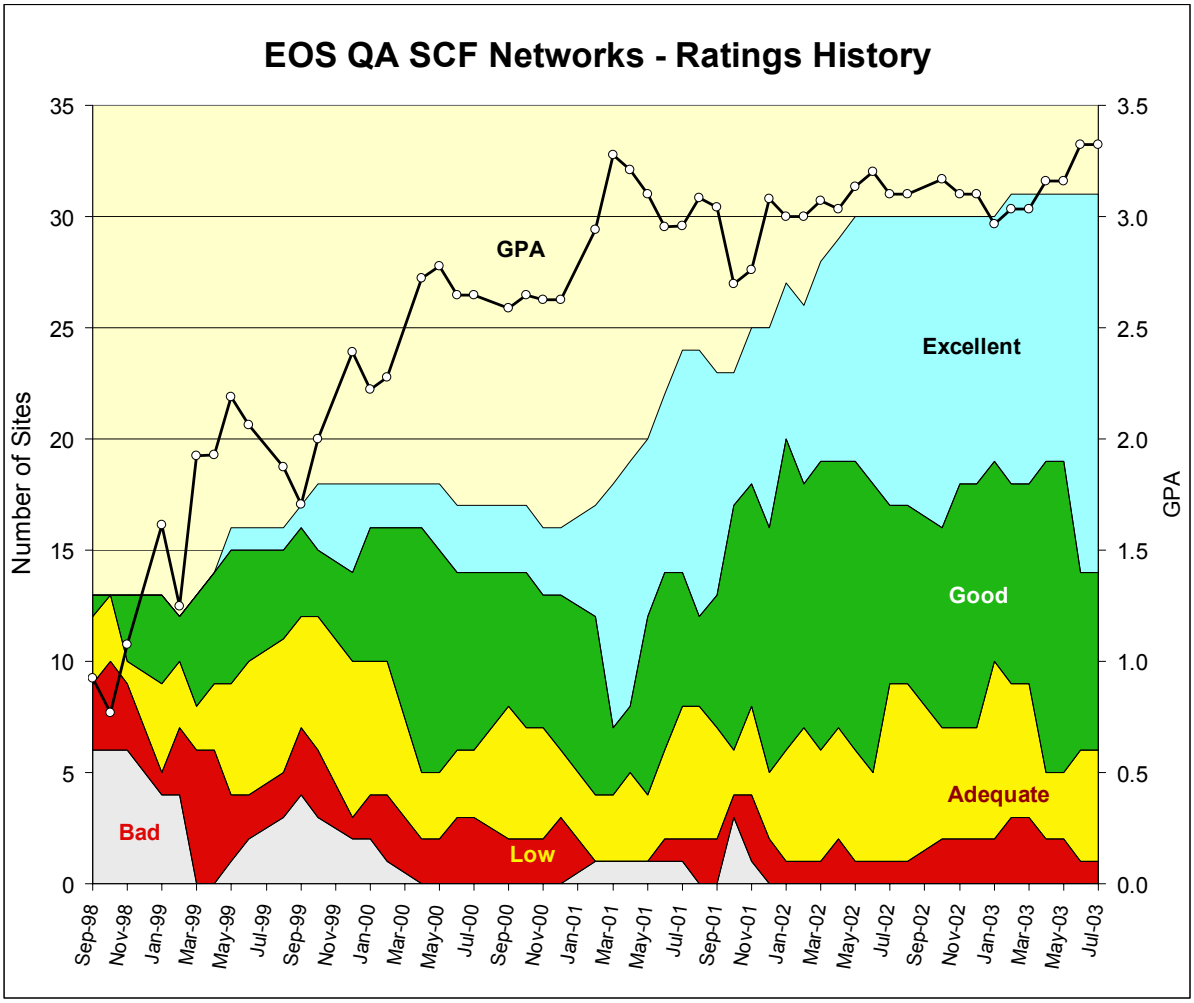
Rating Categories:

Excellent: median of daily worst cases > 3 x requirement
Good: median of daily worst cases > requirement

Adequate: median of daily worst cases < requirement
and
median of daily medians > requirement

Low: median of daily medians < requirement.
Bad: median of daily medians < 1/3 of the requirement.

The chart below shows the number of sites in each classification since the testing started in 1998. Note that these ratings do NOT relate to absolute performance -- they are relative to the EOS requirements. The GPA is calculated based on Excellent: 4, Good: 3, Adequate: 2, Low: 1, Bad: 0



Ratings Changes:

Upgrades: ↑

Arizona: Good → **Excellent**
LaRC → JPL-MISR: Low → **Good**
UCSD: Adequate → **Good**
LANL: Good → **Excellent**
PNNL: Good → **Excellent**
UCL: Good → **Excellent**

Downgrades: ↓

Colo-State: Good → **Adequate**
Univ of Washington: Good → **Adequate**
INPE: Good → **Adequate**

EOS QA SCF Sites:

Network Requirements vs. Measured Performance

July 2003		Requirements (kbps)			Testing							
Destination	Team (s)	Previous:	Current:	Future:	Source Node	Median kbps	Median Daily Worst	Rating re Current Requirements		Rating re		
		Oct-01	Oct-02	Oct-03				Oct-02	Prev	Oct-03	Route Tested	Upgrade
AL, NSSTC (UAH)	CERES, AMSR	2154	2629	4878	LaTIS	14003	10415	Excellent	E	GOOD	NISN + FDDI	
AZ, Tucson (U of AZ)	MODIS, ~~MISR~~	2506	2689	2750	EDC	11707	9086	Excellent	G	Excellent	Abilene via MAX	
CA, JPL (from LaRC)	MISR	11192	18484	18484	LDAAC	38480	29606	GOOD	L	GOOD	EMSnet	
CA, JPL (from GSFC)	AIRS, TES, others	16623	17612	24798	GDAAC	13192	3886	LOW	L	LOW	NISN SIP	Increase VC
CA, RSS	AMSR	376	1156	1926	JPL-PODAAC	2322	1218	GOOD	G	Adequate	2 * T1 - Consolidated	
CA, UCSB	MODIS	2013	2681	2903	GDAAC	18136	11835	Excellent	E	Excellent	Abilene via MAX	
CA, UCSD - SIO	ICESAT, CERES	6225	6478	6478	GSFC-ICESAT	22312	8658	GOOD	A	GOOD	Abilene via NISN / MAX	
CO, Colo State Univ	CERES	1665	1952	2049	LaTIS	2858	1742	Adequate	G	Adequate	NISN -> Abilene	host interface
CO, NCAR - Boulder	MOPITT, HIRDLS	2102	2438	2438	LaRC DAAC	24105	14537	Excellent	G	Excellent	NISN -> Abilene	
FL, Univ. of Miami	MODIS, MISR	9661	15158	16991	GSFC-MAX	39523	12571	Adequate	A	Adequate	Abilene via MAX	
IL, UIUC	MISR	1134	1133	1133								
MA, Boston Univ	MODIS, MISR	1767	2528	2781	EDC DAAC	59592	32164	Excellent	E	Excellent	Abilene via vBNS+	
MA, MIT	ICESAT	5495	6378	6378	GSFC-ICESAT	51470	26255	Excellent	E	Excellent	Abilene via NISN / MAX	
MD, UMD-College Park	MODIS	1969	2011	2025	GSFC-MAX	124418.5	113309	Excellent	E	Excellent	Direct Fiber	
MD, NOAA-NESDIS	CERES, AMSR-E	1509	1509	1513	NSIDC (eff 8/03)						Abilene via FRGP, MAX	
MT, Univ of Montana	MODIS	459	675	747	EDC DAAC	28029	15398	Excellent	E	Excellent	Abilene via vBNS+	
NM, LANL	MISR	616	1033	1033	LaRC DAAC	12012	4174	Excellent	G	Excellent	NISN -> ESNet via CA	
NY, SUNY Stony Brook	CERES	536	558	566	LaTIS	13738	8191	Excellent	E	Excellent	NISN -> Abilene via Chicago	
OH, Ohio State Univ	ICESAT	5425	5678	5678	GSFC-ICESAT	38110	8413	GOOD	G	GOOD	Abilene via NISN / MAX	
OR, Oregon State Univ	CERES, MODIS	4390	6292	6929	LaTIS	17129	9923	GOOD	G	GOOD	NISN -> Abilene	
PA, Penn State	MISR	2121	2642	2642	LaRC DAAC	25956	18553	Excellent	E	Excellent	NISN -> Abilene	
TX, Texas A & M	AMSR-E	1200	1200	1200								
TX, U Texas-Austin	ICESAT	8755	10430	10430	GSFC-ICESAT	40045	16304	GOOD	G	GOOD	Abilene via NISN / MAX	
VA, LaRC - SAGE III MOC	SAGE III	200	200	200	GSFC-CSAFS	7204	2568	Excellent	E	Excellent	NISN SIP	
WA, NOAA PNNL	MISR	921	1442	1442	LaRC DAAC	14762	5290	Excellent	G	Excellent	NISN -> ESNet via Chicago	
WA, U Washington	ICESAT	10920	11003	11003	GSFC-ICESAT	36748	8340	Adequate	G	Adequate	Abilene via NISN / MAX	
WI, U of Wisc.	MODIS, CERES, AIRS	8360	13114	14788	GSFC-MODIS	58493	24004	GOOD	G	GOOD	Abilene via MAX	
Brazil, INPE	HSB	622	1024	1024	GSFC-MAX	1232	532	Adequate	G	Adequate	Abilene -> AMpath-> ANSP	
Canada, U. of Toronto	MOPITT	456	612	612	LaRC DAAC	1425	1145	GOOD	G	GOOD	NISN T1	NISN-CA*net4
France, Palaiseau	CERES	203	205	206								
Italy, Ispra (JRC)	MISR	308	517	517	LaRC DAAC	843	371	Adequate	A	Adequate	NISN-UUNET-Milan	
Netherlands (KNMI)	OMI	0	0	1024	GSFC-MAX	34832	26724	Excellent	E	Excellent	Abilene --> Chi -> Surfnet	
Russia, Moscow (CAO)	SAGE III	26	26	26	CAO-->LaRC-N	157	148	Excellent	E	Excellent	NISN -> Moscow	
UK, Oxford	HIRDLS	0	0	512	GSFC-MAX	4019	3274	Excellent	E	Excellent	Abilene->JAnet (NY)	
UK, London (UCL)	MISR, MODIS	616	1033	1033	LaRC DAAC	16554	7017	Excellent	G	Excellent	Abilene->JAnet (NY)	

*Rating Criteria:		Rating	Current Oct-02	Prev Month	Future: Oct-03
Excellent	Median of Daily worst hours >= 3 *Requirement	Excellent	17	12	16
GOOD	Median of Daily worst hours >= Requirement	GOOD	8	14	8
Adequate	Median of Daily worst hours < Requirement <= Me	Adequate	5	3	6
LOW	Requirement > Median of Daily Medians	LOW	1	2	1
BAD	Requirement > 3 * Median of Daily Medians	BAD	0	0	0
		Total	31	31	31
		GPA	3.32	3.16	3.26

Change History:		
	8-Jun-98	Original
	10-Jul-98	Incorporated new MISR QA flows
	10-Sep-98	Added % of requirements columns and as
	28-Oct-99	Added Previous Status Column
	1-Jul-00	Added "Excellent" Status, Ratings Summary Chart
	10-Apr-01	Updated requirements with BAH, added additional sites and missions
	7-Jun-01	Added ICESAT sites and requirements, added contingency to QA and SIPS
	13-Jul-01	Updated requirements for latest # of users
	10-Jan-03	Updated requirements with BAH

A. Germain

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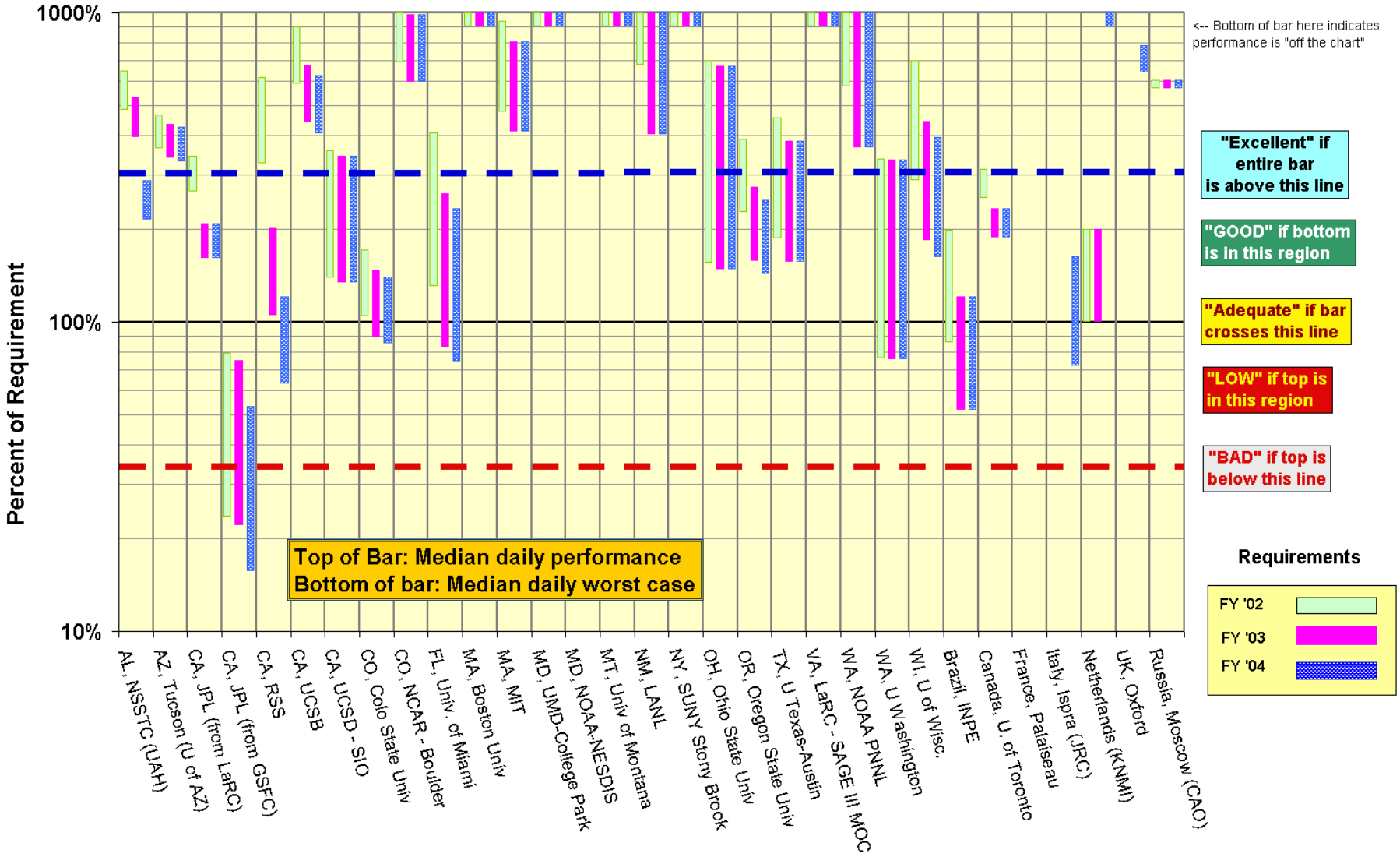
EOS QA SCF Sites

Daily Median and Worst Performance as a percent of Requirements



Details on individual sites:

Each site listed below is the DESTINATION for all the results reported in that section. The first test listed is the one on which the rating is based -- it is from the source most relevant to the driving requirement. Other tests are also listed. The three values listed are derived from [nominally] 24 tests per day. For each day, a daily best, worst, and median is obtained. The values shown below are the medians of those values over the test period.

1) AL, NSSTC (UAH) (aka GHCC)

Rating: Continued **Excellent**

Teams: CERES, AMSR
Domain: nsstc.uah.edu
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/NSSTC.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC LaTIS	14.6	14.0	10.4	NISN SIP
GSFC	23.4	22.6	15.2	NISN SIP

Requirements:

Source Node	FY	mbps	Rating
LaRC LaTIS	'03	2.6	**Excellent**
LaRC LaTIS	'04	4.9	**Good**

Comments: Thruput from LaTIS stable since the LaTIS node was restored on 30 April, improving the rating to "Excellent" for FY '03. Thruput from GSFC stable since 18 April – median was 18.8 mbps before that.

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2) AZ, Tucson (U of AZ):

Rating: ↑ Good → **Excellent**

Teams: MODIS
Domain: arizona.edu
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/ARIZONA.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
EDC LPDAAC	13.6	11.7	9.1	Abilene via vBNS+ / Chicago
GSFC	13.0	10.8	8.2	Abilene via MAX
LaRC	26.3	25.5	14.5	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
EDC LPDAAC	'03, '04	2.7	**Excellent**

Comments: The ratings are based on the MODIS flow from EDC (There is no longer a requirement from LaRC, as the MISR team has all moved away from Arizona).

Performance has been very stable since April, with minor improvement in the measurements. The thruput from EDC improves this month to an "Excellent" rating.

3) CA, JPL:

Ratings: GSFC: Continued **Low**
LaRC: ↑ Low → **Good**

Teams: MISR, AIRS, TES, MLS, ASTER
Domain: jpl.nasa.gov
Web Pages: http://corn.eos.nasa.gov/performance/Net_Health/files/JPL-MISR.html
http://corn.eos.nasa.gov/performance/Net_Health/files/JPL-AIRS.html

Test Results:

Source → Dest	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC → MISR	40.0	38.5	29.6	EMSnet
GSFC DAAC → AIRS	18.4	13.2	3.9	NISN SIP
GSFC → MISR	12.9	12.4	12.1	NISN PIP

Requirements:

Source Node	FY	mbps	Prev Req	Rating
LaRC DAAC	'02, '03, '04	11.2, 18.5, 18.5	11.2, 13.6, 13.6	Good
GSFC DAAC	'02, '03, 04	16.6, 17.6, 24.8	16.6, 15.7, 18.5	Low

Comments:. The route from L-DAAC to JPL-MISR was swicthed to EMSnet on 11 July, with a corresponding performance increase (Prior to that, the median was about 12 mbps via the private ATM PVC, or 14 mbps via NISN SIP). The rating thereby improves to "Good"

Testing to AIRS is from GDAAC, which uses SIP. Thruput from GDAAC to JPL-AIRS has been steady since September '02, but the daily median is still below the requirement, thus a FY'02-'04 rating of "LOW".

Testing from the GSFC campus to JPL has been routed via NISN PIP since September '02, with very steady performance.

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4) CA, RSS: (Santa Rosa):

Ratings: Continued **Good**
Teams: AMSR
Domain: remss.com
Web page: http://corn.eos.nasa.gov/performance/Net_Health/files/RSS.html

Test Results:

Source Node	Medians of daily tests (kbps)			Route
	Best	Median	Worst	
JPL PODAAC	2803.5	2321.5	1217.5	NISN SIP: 2 x T1

Requirements:

Source Node	FY	kbps	Rating
JPL PODAAC	'02	376	Excellent
JPL PODAAC	'03	1156	Good
JPL PODAAC	'04	1926	Adequate

Comments: Performance has been very stable since August '02, as good as can be expected from a pair of T1s. The median daily worst was well above 3 x the FY '02 requirement, but with the increased FY'03 and '04 requirements, the rating drops to "Good" for FY'03 and "Adequate" for FY'04.

Note: RSS also has a requirement to flow data to NSSTC (see #1). This is not tested yet. The requirement is 900 kbps in FY '03, but grows to 3.1 mbps in FY'04 and 4.4 mbps in FY'05. While the FY'03 requirement is achievable with the 2 x T1 configuration, the FY'03 and '04 flows are not.

5) CA, UCSB:

Ratings: GSFC: Continued **Excellent**
EDC: Continued **Excellent**

Teams: MODIS
Domain: s2k.ucsb.edu
Web page: http://corn.eos.nasa.gov/performance/Net_Health/files/UCSB.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-DAAC	21.3	18.1	11.8	Abilene via NISN / MAX
EDC-LPDAAC	20.6	18.9	16.8	Abilene via vBNS+ / Chicago

Requirements:

Source Node	FY	mbps	Rating
GSFC-DAAC	'02, '03, '04	2.0, 2.7, 2.9	**Excellent**
EDC-LPDAAC	'02, '03, '04	1.6, 1.9, 2.1	**Excellent**

Comments: The requirements are split between EDC and GSFC. Performance from EDC is very steady. From GSFC there have been two Abilene routes used. The most common route (in use since the end of May) is via Chicago, with performance about the same as from EDC (which always is routed via Chicago). But sometimes traffic from GSFC is routed on Abilene via Atlanta, so it enters CalREN at a different point, and gets much higher thruput – peaks 50-60 mbps. The rating remains "Excellent" from both sources.

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6) CA, UCSD (SIO):

Ratings: GSFC: ↑ Adequate → **Good**
LaTIS: Continued **Excellent**

Teams: CERES, ICESAT
Domain: ucsd.edu
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/UCSD.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ICESAT	37.2	22.3	8.7	Abilene via NISN / MAX
LaTIS	26.5	25.8	18.8	Abilene via NISN / Chi

Requirements:

Source Node	FY	mbps	Rating
GSFC	'02, '03 - '04	6.2, 6.5	**Good**
LaTIS	'02 - '04	0.26	**Excellent**

Comments: The rating is based on testing from the ICESAT SCF at GSFC. Performance improved in mid June from both GSFC sites (median from ICESAT was 12.4 mbps before that). This improves the rating to "Good".

Performance from LaTIS has been stable since the LaTIS test node was restored on 30 April – the median prior to that was 13.5 mbps. The CERES requirements are much lower than ICESAT, so the LaTIS rating continues as "Excellent".

7) CO, Colo State Univ.:

Rating: ↓: Good → **Adequate**

Teams: CERES Domain: colostate.edu

Web page: http://corn.eos.nasa.gov/performance/Net_Health/files/COLO-ST.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaTIS	3.9	2.9	1.7	Abilene via NISN / Chicago
GSFC	5.9	4.6	3.1	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
LaTIS	'02, '03, '04	1.67, 1.95, 2.05	**Adequate**

Comments: Performance from both LaTIS and GSFC dropped and got noisier on 17 June, apparently due to reconfiguration at Colo State (median from LaTIS was 4.5 mbps previously). The daily worst is now BELOW the requirement for '03 through '04, so the rating drops to "Adequate". Median performance from GSFC was 7.1 mbps last month — would rate as "Good".

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8) CO, NCAR:

Ratings: LaRC: ↑ Good → **Excellent**

GSFC: Continued **Excellent**

Teams: MOPITT, HIRDLS

Domain: scd.ucar.edu

Web page: http://corn.eos.nasa.gov/performance/Net_Health/files/NCAR.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	26.5	24.1	14.5	Abilene via NISN / Chicago
GSFC-MAX	70.1	64.4	42.1	Abilene via MAX
EDC	84.0	71.7	62.8	Abilene via vBNS+ / Chicago

Requirements:

Source Node	FY	mbps	Rating
LaRC DAAC	'02, '03, '04	2.1, 2.4, 2.4	**Excellent**
GSFC	'02, '03, '04	2.3, 2.6, 3.1	**Excellent**

Comments: Performance from LaRC DAAC was significantly less noisy, with higher dips than last month. The median daily worst is now above 3 x the requirement, so the rating remains Improves to "Ecellent"".

Performance from GSFC-MAX and EDC both dropped on 30 May, from about 70 to 45 mbps, due to TCP slow rampup. At that time, however, performance from "GSFC-ESTO" was unaffected, staying at about 90 mbps. But when "GSFC-ESTO" was switched from a fast-E interface to a GigE interface on 24 July, the slow TCP rampup was then observed, dropping performance to only 30 mbps. Performance from a node at NASA Ames continues at over 90 mbps . Strange...it looks like maybe when both hosts are on GigE interfaces, a TCP stack anomaly is created.

9) FL, Univ. of Miami:

Rating: GSFC: Continued **Adequate**
LaRC: Continued **Excellent**

Teams: MODIS, MISR
Domain: rsmas.miami.edu
Web page: http://corn.eos.nasa.gov/performance/Net_Health/files/MIAMI.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-MAX	57.6	39.5	12.6	Abilene via MAX
GSFC-MODIS	30.4	13.3	6.6	Abilene via NISN / MAX
LaRC DAAC	26.8	20.7	11.7	Abilene via NISN / Chicago

Requirements:

Source Node	FY	mbps	Rating
GSFC	'02	9.7	Good
GSFC	'03 , '04	15.1, 17.0	Adequate
LaRC DAAC	'02, '03, '04	1.1	Excellent

Comments: Performance from GSFC sources continues short term noisy (about a 4.5:1 ratio between daily best and worst), but long term stable since January. The rating remains "Adequate" compared to the revised requirements.

Performance from LaRC DAAC has been stable since 29 April, possibly due to NISN VC reconfig —- increases rating from LaRC to "Excellent".

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10) MA, Boston Univ:

Ratings: EDC: Continued **Excellent**
LaRC: Continued **Excellent**

Domain: bu.edu
Teams: MODIS, MISR
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/BU.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
EDC DAAC	75.9	59.6	32.2	Abilene via vBNS+ / Chicago
GSFC	91.2	89.3	61.6	Abilene via MAX
LaRC DAAC	26.7	25.9	18.7	Abilene via NISN / Chicago

Requirements:

Source Node	FY	mbps	Rating
EDC DAAC	'02, '03, '04	1.7, 2.0, 2.3	Excellent
LaRC DAAC	'02, '03, '04	1.2	Excellent

Comments: Performance from GSFC and EDC was restored to previous levels on 27 June after dropping dramatically on May 19 (e.g., median performance from EDC was 16 mbps). Note that performance from GSFC to MIT, mostly via the same route, was unaffected. The rating continues to be "Excellent".

Performance from LaRC was also unaffected from May 19 - June 27. The LaRC requirement is small, so the rating continues to be "Excellent".

11) MA, MIT:

Rating: Continued **Excellent**

Teams: ICESAT
Domain: mit.edu
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/MIT.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ICESAT	60.2	51.5	26.3	Abilene via NISN / MAX

Requirements:

Source Node	FY	mbps	Rating
GSFC	'02, '03-'04	5.5, 6.4	**Excellent**

Comments: Performance from GSFC to MIT has been very stable (in contrast with GSFC to BU); the rating remains "Excellent".

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12) MD, NOAA-NESDIS (Camp Springs)

Rating: N/A

Teams: CERES, AMSR-E
Domain: nesdis.noaa.gov
Web Pages: http://corn.eos.nasa.gov/performance/Net_Health/files/NOAA-Camp-Springs.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
NSIDC				
LATIS				
GSFC-SEN	36.4	26.1	14.0	Peering at MAX

Requirements (QA only):

Source Node	FY	mbps	Rating
NSIDC	'02 – '04	1.51	**N/A**
LATIS	'02 – '04	0.21	**N/A**

Comments: Requirements identified for NSIDC and LaTIS to NOAA; testing began in August. Testing from GSFC has been ongoing.

13) MD, Univ. of Maryland:

Rating: Continued **Excellent**

Teams: MODIS
Domain: umd.edu
Web Pages: http://corn.eos.nasa.gov/performance/Net_Health/files/UMD-SCF.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-MAX	129.4	124.4	113.3	Direct Fiber OC-12 / MAX / SCF
EDC	124.9	102.7	49.4	VBNS+ / Chi / Abilene / MAX / SCF
NSIDC	38.6	38.3	34.5	Abilene / MAX / SCF

Requirements (QA only):

Source Node	FY	mbps	Rating
GSFC DAAC	'02 – '04	2.0	**Excellent**

Comments: Performance from GSFC-MAX dropped from 152 mbps on 8 April. Somewhat noisy but long term stable from EDC. Extremely stable from NSIDC.

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14) MT, Univ of Montana:

Rating: Continued **Excellent**

Teams: MODIS
Domain: ntsg.umt.edu
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/MONT.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
EDC LPDAAC	28.8	28.0	15.4	VBNS+ / Chi / Abilene
GSFC	36.8	35.3	26.1	MAX / Abilene
NSIDC	36.8	33.6	22.1	CU / FRG / Abilene

Requirements:

Source Node	FY	kbps	Rating
EDC LPDAAC	'02, '03, '04	459, 675, 747	**Excellent**

Comments: Stable performance from all sources. With the low requirements, the rating continues as "Excellent".

15) NM, LANL:

Rating: ↑ Good → **Excellent**

Teams: MISR
Domain: lanl.gov
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/LANL.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	17.3	12.0	4.2	NISN SIP / MAE-W (Ames) / ESnet
GSFC	13.0	8.5	3.2	MAX / ESnet

Requirements:

Source Node	FY	kbps	Rating
LaRC DAAC	'02, '03-'04	616, 1033	**Excellent**

Comments: Performance from LDAAC improved somewhat on 18 June (both LaRC and GSFC had dropped on 30 April, LDAAC had dropped to 6.4 mbps median and 2.1 mbps worst). Rating improves back to :Excellent". GSFC thruput was unchanged.

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16) NY, SUNY-SB:

Rating: Continued **Excellent**

Teams: CERES, MODIS
Domain: sunysb.edu
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/SUNYSB.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaTIS	14.3	13.7	8.2	NISN SIP / MAX / Abilene / NYSERnet
GSFC	31.5	27.3	24.4	MAX / Abilene / NYSERnet

Requirements:

Source Node	FY	kbps	Rating
LaTIS	'02-'04	560	**Excellent**

Comments: Performance from LaTIS improved after the LaTIS test node was restored on 30 April – median had been 7.9 mbps. With the low requirement, the rating remains "Excellent". Performance from GSFC dropped to a median of 27 mbps on May 21 – has been stable at this new value (previously 32).

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17) OH, Ohio State Univ:

Rating: Continued **Good**

Teams: ICESAT
Domain: ohio-state.edu
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/OHIO-STATE.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ICESAT	54.5	38.1	8.4	Abilene via NISN / MAX

Requirements:

Source Node	FY	mbps	Rating
GSFC	'02 '03	5.7	**Good**

Comments: Performance noisy but stable since firewall installation at Ohio in September '02, other than a bad period from June 27 to July 9 (about 1.5 mbps for that period).

18) OR, Oregon State Univ:

Ratings: LaTIS: Continued **Good**
GSFC: Continued **Excellent**

Domain: oce.orst.edu
Teams: CERES, MODIS
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/ORST.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaTIS	21.2	17.1	9.9	Abilene via NISN / Chicago
JPL	6.8	5.3	4.7	Commodity Internet
GSFC	10.9	9.1	5.4	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
LaTIS	'02, '03, '04	4.2, 6.1, 6.9	Good
GDAAC	'02 - '04	0.20	Excellent

Comments: Performance from LaTIS improved again around 1 July (median was 12 mbps before that). Cause unknown -- rating stays "Good". Performance stable from GSFC. From JPL, route switched to Commodity internet on 16 June, performance dropped from 18 mbps median previously.

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19) PA: Penn State Univ:

Rating: Continued **Excellent**

Teams:MISR
Domain: psu.edu
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/PENN-STATE.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	27.0	26.0	18.6	Abilene via NISN / MAX
GSFC	74.6	74.3	57.6	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
LaRC DAAC	'02, '03-'04	2.1, 2.6	Excellent

Comments: Performance from LDAAC stable since 1 March; the rating remains "Excellent". Performance from GSFC has been extremely stable since 12 Feb.

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20) TX: Univ. Texas - Austin

Rating: Continued **Good**

Teams: ICESAT
Domain: utexas.edu
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/TEXAS.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ICESAT	48.2	40.0	16.3	Abilene via NISN / MAX
GSFC-MAX	53.0	52.2	28.3	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
GSFC	'02, '03-'04	8.8, 10.4	Good

Comments: Performance from GSFC-MAX and ICESAT-SCF at GSFC via Abilene improved a bit in July (previous median from ICESAT was 28 mbps), but the rating remains "Good"

21) VA, LaRC - SAGE III MOC:

Rating: Continued **Excellent**

Teams: SAGE III
Domain: larc.nasa.gov
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/SAGE-MOC.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-SAFS	7.7	7.2	2.6	NISN SIP

Requirements:

Source Node	FY	kbps	Rating
GSFC SAFS	'02 – '04	200	**Excellent**

Comments: Upgrade of LaRC MOC machine on 19 Feb improved thruput (median was 3.9 mbps with old host).

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22) WA, Pacific Northwest National Lab:

Rating: ↑ Good → **Excellent**

Teams: MISR
Domain: pnl.gov

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	15.1	14.8	5.3	ESnet via NISN - Chicago
GSFC	16.4	13.1	8.0	ESnet via MAX

Requirements:

Source Node	FY	mbps	Rating
LaRC DAAC	'02, '03-'04	0.9, 1.4	**Excellent**

Comments: Performance from LaRC to PNNL is still noisy, but less so, now with only a 3:1 ratio between typical daily best and worst (was 5:1 previously). The median worst is now above 3 x the requirement, so the rating improves back to "Excellent".

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23) WA, Univ Washington:

Rating: ↓ Good→ **Adequate**

Teams: ICESAT
Domain: washington.edu
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/UW.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-ICESAT	46.3	36.7	8.3	Abilene via NISN/MAX
GSFC-MAX	48.8	48.6	23.4	Abilene via MAX

Requirements:

Source Node	FY	mbps	Rating
GSFC	'02 – '04	11.0	**Adequate**

Comments: Performance from ICESAT-SCF at GSFC is a bit noisier than from GSFC-MAX. The median daily worst is now below the requirement, so the rating drops to "Adequate".

24) WI, Univ. of Wisconsin:

Ratings: GSFC: Continued **Good**
LARC: Continued **Adequate**

Teams: MODIS, CERES, AIRS Domain: ssec.wisc.edu
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/WISC.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-MODIS	85.1	58.5	24.0	MAX / Abilene / Chi / MREN
LaTIS	8.0	7.6	5.3	NISN / Chicago / MREN
GSFC-MAX	56.8	52.6	30.9	MAX / Abilene / Chi / MREN
GSFC-NISN	16.4	16.4	13.9	NISN / Chicago / MREN

Requirements:

Source Node	FY	mbps	Rating
GSFC	'02, '03, '04	8.3, 13.1, 14.8	Good
LaRC Combined	'03, '04	6.8, 7.5	Adequate

Comments: Performance from all GSFC Sources has been stable since March.

Performance from LaTIS improved a bit more this month (median was 6.9 mbps previously) leaving the LaRC rating "Adequate" for FY '03, but improving the rating to "Adequate" for FY '04.

However, the rating is based on the larger GSFC requirement, and therefore remains "Good".

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25) Brazil, INPE:

Rating: ↓ Good→ **Adequate**
Team: HSB Domain: inpe.br
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/INPE-HSB.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC	2.2	1.2	0.5	MAX / Abilene / AMPATH / ANSP
GSFC	1.3	0.5	0.2	NISN / GBLX / ANSP

Requirements: (2 ISTs only)

Source Node	FY	mbps	Rating
GSFC EOC	'02 – '04	1.02	Adequate

Comments: Testing via two routes: commodity internet, and AMPATH. Performance decreased back to previous levels on 30 June -- had increased on both routes on 14 May (medians were 3.6 mbps via AMPATH and 1.0 mbps via commodity internet for that period). Rating decreases back to "Adequate".

26) Canada, Univ of Toronto: Rating: Continued Good

Team: MOPITT Domain: physics.utoronto.ca
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/TORONTO.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	1.43	1.42	1.15	NISN / GSFC / T1
LaRC DAAC	12.2	9.3	7.8	NISN / Chicago / CA*net4
GSFC	1.43	1.43	1.21	NISN / T1
GSFC	28.1	28.0	25.3	MAX / Abilene / Chicago / CA*net4

Requirements:

Source Node	FY	kbps	Rating
LaRC DAAC	'02 - '04	100	Excellent
GSFC EOC	'02 - '04	512	Good
Combined	'02 - '04	612	Good

Comments: Performance from both LDAAC (Source of QA data) and GSFC (Source for IST) via NISN dedicated T1 is very steady. Since both flows are combined together on the T1, the performance compared to the combined requirement rates as "Good".

Performance via CA*net4 from GSFC has been very steady since 19 August 2002. It would be rated "Excellent". Performance from LaRC via NISN / Chicago / CA*net4 / ONet improved a bit – median had been typ 8.8 mbps last month.

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27) IT, EC - JRC: Rating: Continued Adequate

Teams: MISR Domain: ceo.sai.jrc.it
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/JRC.html

Test Results:

Source Node	Medians of daily tests (kbps)			Route
	Best	Median	Worst	
LaRC DAAC	1338	843	371	NISN / UUnet / Milan
GSFC-NISN	1493	1235	396	NISN / UUnet / Milan

Requirements:

Source Node	FY	kbps	Rating
LaRC DAAC	'02 – '04	517	Adequate

Comments: Performance improved from both sources on 20 June, and again on 24 July (data above represents the 20-June to 23 July period). Median thruput from LaRC had been 700 kbps, and 800 from GSFC. The rating remains "Adequate" for July, but the performance after 24 July will move the rating to "Good" next month.

28) Netherlands, KNMI:

Rating: Continued **Excellent**

Teams: OMI
Domain: nadc.nl
Web Pages: http://corn.eos.nasa.gov/performance/Net_Health/files/KNMI-OMIPDR.html
http://corn.eos.nasa.gov/performance/Net_Health/files/KNMI.html

Test Results:

Source → Dest	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC-MAX → OMI PDR Server	35.5	34.8	26.7	MAX / Abilene/ Chi / Surfnet
GSFC-MAX → KNMI Test Node	92.2	92.2	78.5	MAX / Abilene/ Chi / Surfnet
GSFC-NISN → KNMI Test Node	29.7	17.2	2.7	NISN / Chi / Surfnet

Requirements: (2 ISTs Only)

Source Node	FY	Mbps	Rating
GSFC	'04	1.024	**Excellent**

Comments: Performance via Abilene and Surfnet is very stable to both the OMI PDR server, and the KMNI Test node. This is exceptionally good performance for US to Europe! Performance to the OMI PDR server changed on 30 June, apparently due to reconfiguration at KNMI (performance to the KNMI test node was unchanged.). Previously, there were two interfaces on the OMI PDR server, configured differently. One got about 70 mbps steady, and the other only 8. But after 30 June, both get about 35 mbps.

Performance via NISN to Chicago is much lower and noisier than via Abilene. Therefore, it is important that all servers at GSFC which communicate with KNMI have access to MAX.

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29) Russia, CAO (Moscow):

Rating: Continued **Excellent**

Teams: SAGE III
Domain: mipt.ru
Web Pages: http://corn.eos.nasa.gov/performance/Net_Health/files/CAO.html
http://corn.eos.nasa.gov/performance/Net_Health/files/LARC-SAGE.html

Test Results:

Source → Dest	Medians of daily tests (kbps)			Route
	Best	Median	Worst	
CAO → LaRC	158	157	148	MIPT / TCnet / NISN SIP
CAO → LaRC	1280	1254	906	Commodity Internet
LaRC → CAO	157	139	131	NISN SIP / TCnet / MIPT
LaRC → CAO	1473	1331	665	Commodity Internet

Requirements:

Source → Dest	FY	kbps	Rating
CAO → LaRC	'02 – '04	26	**Excellent**
LaRC → CAO	'02 – '04	26	**Excellent**

Comments: Performance testing running since 1 November '02, with dual routes. Performance on NISN dedicated circuit to Moscow, then TCnet (NASA Russian ISP) tunnel to CAO ISP (MIPT) is extremely steady in both directions.

The dual route configuration also allows testing via the commodity internet route. Performance via that route is better, but is more variable, and also would rate Excellent. Internet performance improved about 200 kbps in both directions starting on March 31.

30) UK, London: (UCL SCF)

Rating: ↑ Good → **Excellent**

Teams: MODIS, MISR Domain: ucl.ac.uk
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/UCLSCF.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
LaRC DAAC	18.6	16.6	7.0	NISN / MAX / Abilene / NY / JAnet
GSFC MAX	48.3	48.1	28.2	MAX / Abilene / NY / JAnet

Requirements

Source Node	FY	mbps	Rating
LaRC DAAC	'02 – '04	1.03	**Excellent**

Comments: Performance from both sources to the new host (May '03) improved by using multiple concurrent TCP streams to mitigate the TCP window size limitation (medians were 6 mbps from LDAAC and 16 mbps from GSFC last month). The rating thereby improves to "Good".

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31) UK, Oxford:

Rating: Continued **Excellent**

Teams: HIRDLS Domain: ox.ac.uk
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/OXFORD.html

Test Results:

Source Node	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC	4.0	4.0	3.3	MAX / Abilene / NY / JAnet

Requirements: (IST Only)

Source Node	FY	kbps	Rating
GSFC	'03 – '04	512	**Excellent**

Comments: Very steady short term performance continues, but occasional step changes: -- switching between 3.4 (most common), 4.0, or 5.1 mbps. Stable at 4.0 mbps since early May. But all these values rate as excellent compared to the IST requirement.

Test Results to other EOS HIRDLS UK Sites (Requirements TBD):
Web Page: http://corn.eos.nasa.gov/performance/Net_Health/files/UK-RAL.html

Source → Dest	Medians of daily tests (mbps)			Route
	Best	Median	Worst	
GSFC → RAL	25.7	13.8	6.2	MAX / Abilene / NY / JAnet

Comments: Thruput to RAL remains noisy, but quite good, with frequent step changes. The most recent change was an improvement from a median of 5 mbps in mid June.